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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Plant Pest Control Division  
Federal Center Building  
Hyattsville, Maryland 20781

April 1, 1964

PPC DIVISION MEMORANDUM NO. 801.31

To: PPC Field Stations

From: E. D. Burgess, Director

Subject: Procedures for handling pesticides  
safely

I INTRODUCTION

This booklet is for Plant Pest Control Division employees who handle, transport, store, apply pesticides, clean up pesticide storage areas, and dispose of used containers and pesticide-packaging materials. This booklet supersedes PPC Division Memorandum No. 801.31 dated May 14, 1963.

The label on the pesticide container will indicate the stringency of precautions to be taken while using the specific pesticide. Pesticides vary in type, chemical composition, and toxicity. When handling, storing, and applying pesticides, remember that pesticides are classified as being: very hazardous, moderately hazardous, or of a low hazard level. In other words, all insecticides are hazardous, differing only in the degree of hazard. Regardless of the level of toxicity, proper precautions must be followed in handling, mixing, applying, and storing.

The precautions given in this booklet increase in importance with the increase in the level of toxicity of the pesticide involved. Read the

label on the pesticide container with care. That information was prepared for your protection as a user and handler.

## II YOUR RESPONSIBILITY AS AN EMPLOYEE

- A Follow safety instructions as outlined by your supervisor.
- B Handle pesticides safely and in accordance with label instructions.
- C Use and maintain the protective equipment as instructed by your supervisor.
- D Consult with your supervisor regarding treatment if you feel ill.
- E Report to your supervisor any on-the-job pesticide handling or use procedure that you believe to be unsafe.
- F Remember that carelessness with pesticides cannot be tolerated because other employees may be affected.

## III PESTICIDES CAN BE USED SAFELY

Everyone who works with pesticide chemicals--the farmer, the aerial applicator, the home gardner, the nurseryman, the housewife spraying her house plants, and even warehouse and trucking personnel-- should know the precautions which must be taken to protect themselves and others from the effects of the more highly toxic pesticides. It is to our interest as Plant Pest Control Division representatives to set the example in demonstrating that pesticides can be used safely.

## IV USE THEM PROPERLY

Pesticides properly used are valuable tools. Select for the specific need and use correctly.

Before starting the application on any pesticide program, you must understand how the work is to be done. Pests can be more effectively dealt with at some stages of their life development than at other periods, therefore, select the stage most applicable to control measures. Our operations must be in conformity with the latest Plant Pest Control Division instructions and regulations governing their use.

V THE LABEL IS IMPORTANT

Become familiar with the information printed on the label.

The manufacturer of pesticide chemicals is required by law to identify and label each container of his product. This label lists the chemicals, the percentage of active ingredients, the approved usages, safe rates and time of application, mixing and application instructions, necessary precautions, and first-aid treatment required when an individual is suspected of being over exposed to the pesticide.

It is most important that you read the label and understand for what purpose and how the pesticide can be safely used. Remember, pesticides are poisonous, and may, if not correctly used, injure man, animals, and beneficial insects. Make sure you have the correct pesticide, use it in the proper formulation, apply it as directed, and make certain that it is used at recommended dosages.

Your actions afford you the opportunity to demonstrate your ability to use pesticides safely, correctly, and effectively for the benefit of yourself and others.

If you have any questions regarding the safest way to conduct your work assignment, consult your supervisor.

## VI TRANSPORTING AND STORING PESTICIDES

Pesticides are not to be carried in vehicles used for passenger transport unless special precautions are taken to prevent spillage and contamination of vehicle with fumes.

Pesticide chemicals, in open or unopened containers, must not be stored in rooms that are used for storage of feed or food products.

Avoid contact with pesticides and empty containers that have been used for pesticide storage or transportation. If handling is necessary, follow label precautions.

## VII PROTECTIVE EQUIPMENT IS FOR YOUR PROTECTION

Respirators or gas masks must be worn when irritating or toxic vapors or dusts are present in the work area. It is extremely important that the filter be appropriate for the pesticide involved. (See PPC Division Control Manual, 807-85, Respiratory Protective Devices). When goggles are required they must fit the face snugly. Gloves, rubber or plastic aprons, and specially treated clothing represent other protective items. Gloves, goggles, masks, etc. will be furnished by the Division. Do not hesitate to request such equipment from your supervisor when it is needed.

All that any of this equipment can do is keep the toxic material from contact with the skin, out of the eyes, or filter it from the air being breathed. Protective equipment is good only as long as the man using the device does his part to correctly use and maintain the equipment. Respirator filters must be changed as often as the situation warrants.

Instructions for sanitizing protective equipment are contained in PPC Division Memorandum No. 801.29.

## VIII HOW TO DISPOSE OF PESTICIDE CONTAINERS

Empty containers used for highly toxic pesticides must be completely destroyed so they cannot be used again as a container or salvaged for other use, except containers which remain the property of the supplier.

Disposal methods must not leave chemicals on the surface of the soil, where ground water may carry them into streams or ponds.

Bags or cardboard containers should be burned and the ashes buried. Keep out of the smoke while the containers are being burned.

Glass pesticide containers should be broken and buried after they have served the original purpose.

All metal containers should be demolished beyond use and then buried at a place where there will be no danger of pond or stream pollution.

Dumps using the land-fill disposal method are good sites for disposal of metal containers. Adequate precaution must be taken at the dump to assure safe coverage of the containers.

It should be clearly understood that the pesticide containers are not to be left available for miscellaneous use by farmers, ranchers, or others such as dealers in scrap metal. Exceptions can be made only if Division Director approves the action.

## IX SAFETY IS IN YOUR HANDS

Avoid splashing or spilling any of the pesticide on skin or clothing. If this should

happen, be ready to wash immediately with plenty of soap and water if the label so recommends. Contaminated clothing must be washed daily after working with pesticides. Wear clothing which can be easily washed each day. When working with a highly hazardous material, have a change of clothing available at work site.

When spraying or dusting in enclosed areas, wear an approved type of respirator or appropriate gas mask equipped with the proper filter whenever the label on the original pesticide container directs such action. Change filters frequently as needed. It is safer to use a new filter than take a chance on a used one. Equip gas masks with logbook to show time used and time remaining on canister. When working outside, always avoid the drift of the pesticide by working on the side from which the wind blows; use a respirator or mask and protective clothing as required. Be sure protective equipment is available before starting the job.

If you or a coworker becomes ill when working with a pesticide, even when all precautions appear to have been taken, stop at once and request examination or treatment. A few of the chemicals used as pesticides have cumulative effects and daily exposure may be tolerated with no visible symptoms until a large accumulation has been received. Occasionally, workers after repeated exposure to a chemical, become allergic to it and are thereafter unable to work with formulations containing that material.

X FOLLOW THESE RULES

When using a pesticide chemical, know which pesticide is the most feasible for the situation needing treatment.

Read the label on the container and follow recommended safety practices.

Know the correct dosage and mixing requirements to prevent damage to plants and animals.

Use the respirator, gloves, or other protective equipment as recommended.

When applying dusts or sprays, work from a position which will keep the pesticide drift from falling on the operator.

Keep children or irresponsible adults, pets, and livestock out of loading or storage sites, and areas in which application is in process. These precautions are extremely important when using highly toxic pesticides.

Wash hands immediately after contact with pesticides, and before smoking or handling food. Do not eat, drink, or smoke while in the act of using pesticides.

Select sites for loading and storage that will prevent contaminating streams, ponds, cisterns, food stocks, or crops adjacent to work area.

Pick up and safely dispose of empty pesticide bags or containers immediately after use.

Never use milk or beverage bottles, or other types of food containers for storage of pesticides.

Clean up spilled pesticides at once.

Immediately remove clothing contaminated by accidental spillage. Change clothing and shower thoroughly after working with pesticides.

Become familiar with first-aid treatment needed in case of pesticide poisoning.

Know where and how medical help can be obtained as soon as needed if you or a coworker becomes ill as a result of handling pesticides.

Remember that experienced operators continuously keep the following points in mind:

- 1 All pesticides may be used safely.
- 2 You must follow the prescribed safety measures when working with pesticides.

**XI      MR. SUPERVISOR--IT'S YOUR RESPONSIBILITY**

- A To see that each employee receives adequate instructions and understands the importance of safe handling of the pesticide involved in this operation.
- B To provide the essential protective equipment and instructions necessary to assure correct usage.
- C To make advance arrangements with local medical service for immediate emergency treatment in case of over exposure to toxic pesticides and to inform employees how and where to obtain emergency treatment if such becomes necessary. Refer to section XII.
- D To assure that soap, water, and towels are available at the job site for washing hands, face, and eyes as the job need may require. This is also required of the pesticide contractor in the PPC contracts.
- E To locate disposal site and furnish instructions for disposal of used containers and other pesticide-packaging materials.

F To provide for storage sufficient to protect the pesticides from children as well as from use by unauthorized adults.

## XII ESSENTIAL MEDICAL AID INFORMATION

Preventing pesticide injury is easier than providing the paper work and explanations required by a careless act resulting in over exposure to a pesticide.

A Antidotes for pesticides. The number following the pesticide name refers to the appropriate antidote instructions found following this pesticide listing.

Aldrin - 2  
Ammate - 3  
Ammonium sulfamate - 3  
Bidrin - 4  
BHC - 2  
Black leaf 40 - 2  
Calcium arsenate Paris green - 2  
Calcium cyanamide - no need for antidote  
(Ingestion of alcohol following extensive application of chemical may cause vaso-motor reaction.)  
Carbon disulfide - 6  
Ceresan - 3  
Chlordane - 2  
Chloropicrin - 6  
Corrosive sublimate - 3  
Cryolite - 2  
DDD - 2  
DDT - 2  
DDVP - 4  
Dichloropropane-dichloropropene - 6  
(D-D Mixture)  
Dieldrin - 2  
Dimethoate - 4  
Dinitro soluble oil - 5  
DN Dusts - 5

Dorlone - 6  
Dowfume W-85 - 6  
Dow General, Sinox - 5  
EB-5 - 2  
Endrin - 2  
Ethylene-dibromide - 6  
Ethylene-dibromide-chlordane - 2 and 6  
GC-3707 - 4  
Guthion - 4  
Heptachlor - 2  
Hydrochloric acid - 1  
Hydrogen cyanide gas - 7  
Lindane - 2  
Malathion - 4  
Methyl bromide - 6  
Methyl parathion - 4  
Methoxychlor - 2  
Mirex - 2  
Myrone W-85 - (4, omit atropine treatment)  
Naled (Dibrom) - 4  
Nemagon - 6  
Nicotine sulphate - 2  
OMPA - 4  
Panogen - 3  
Parathion - 4  
Pentachlorophenol - 2  
Phorate (Thimet) - 4  
Phosdrin - 4  
Phosphoric acid - 1  
Sevin - 4  
Sodium arsenite - 2  
Sodium fluosilicate - 3  
Sodium fluoride - 2  
Standard lead arsenate - 2  
Sulfuric acid - 1  
Telone - 6  
TEPP - 4  
Thimet - 4  
Toxaphene - 2  
Trithion - 4  
Vapam - 6  
Zectran - 4

2, 4-D - 2  
2, 4, 5-T - 2

Antidote No. 1: Call physician immediately.

Internal: Give 20 to 30 cc. (2/3 to 1 oz.) of Milk of Magnesia or preferably aluminum hydroxide gel well diluted with water. If these are not available, use whites of 2 or 3 eggs, well beaten. Give large quantities of water.

External: Wash with water, apply moistened sodium bicarbonate. If eyes are involved, flush with water, then with 1% sodium bicarbonate.

Antidote No. 2: Call physician immediately.

Internal: Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear; then give 2 tablespoonfuls of Epsom Salt or Milk of Magnesia in water and plenty of milk and water. Have the victim lie down and keep quiet.

External: Wash with soap and water.

Antidote No. 3: Call physician immediately.

Internal: Give milk or white of egg beaten with water, then a tablespoonful of salt in warm water and repeat until vomit fluid is clear. Repeat milk or white of egg beaten with water.

External: Wash with soap and water. In case of contact remove all contaminated clothing immediately and wash skin with soap and plenty of water. If burning or blistering of skin results, get medical attention. If eyes are involved, flush with water for at least 15 minutes, get medical attention.

Antidote No. 4: Call physician immediately.

Internal: Induce vomiting by finger down throat or tablespoonful of salt in a glass of warm water. Repeat until vomit fluid is clear. Give plenty of milk or water. Atropine (.01 gr. each) in large doses should be administered by physician. Have victim lie down and keep quiet.

External: Remove from contaminated air. Remove contaminated clothing and immediately wash skin with soap and water. Do not reuse clothing until completely de-contaminated. If breathing becomes impaired be prepared to start artificial respiration instantly.

Antidote No. 5: Call physician immediately.

Internal: Give tablespoonful of baking soda in warm water; repeat until vomit fluid is clear.

External: Wash with soap and water.

Antidote No. 6: Call physician immediately.

Remove promptly from contaminated atmosphere. Quickly remove any contaminated clothing. Give artificial respiration if breathing has stopped. Keep victim lying down and warm.

Antidote No. 7: Call physician immediately.

Carry victim to fresh air. Have him lie down. Remove contaminated clothing but keep victim warm. Start treatment immediately. If inhaled: Break an amyl nitrite pearl in a cloth and hold lightly under nose for 15 seconds. Repeat five times at about 15 second intervals. Give artificial respiration if breathing has stopped. If swallowed: Break an amyl nitrite pearl in

a cloth and hold lightly under nose for 15 seconds. If victim is conscious or when consciousness returns, give a tablespoon of salt in a glass of warm water and repeat until vomit fluid is clear. Repeat inhalation of amyl nitrite five times at 15 second intervals. Give artificial respiration if breathing has stopped.

NOTE

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PATIENT

ACIDS:

Flush eyes with water for approximately 15 minutes, get medical attention.

NICOTINE:

In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes; for eyes get medical attention. Remove and wash clothing before reuse.

B Know where to obtain emergency treatment, (supervisor will supply applicable information to crew members prior to beginning of on-site operations). (See Control Manual, 807.86, Safe Handling of Chemicals and Emergency Treatment).

Contact the nearest location on the following listing in case you or a coworker becomes over exposed to one of the more highly toxic pesticides. (Quick availability to medical help is essential. Therefore, the listing need not be restricted to BEC designated physicians):

Dr. or Medical Unit \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

Dr. or Medical Unit \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

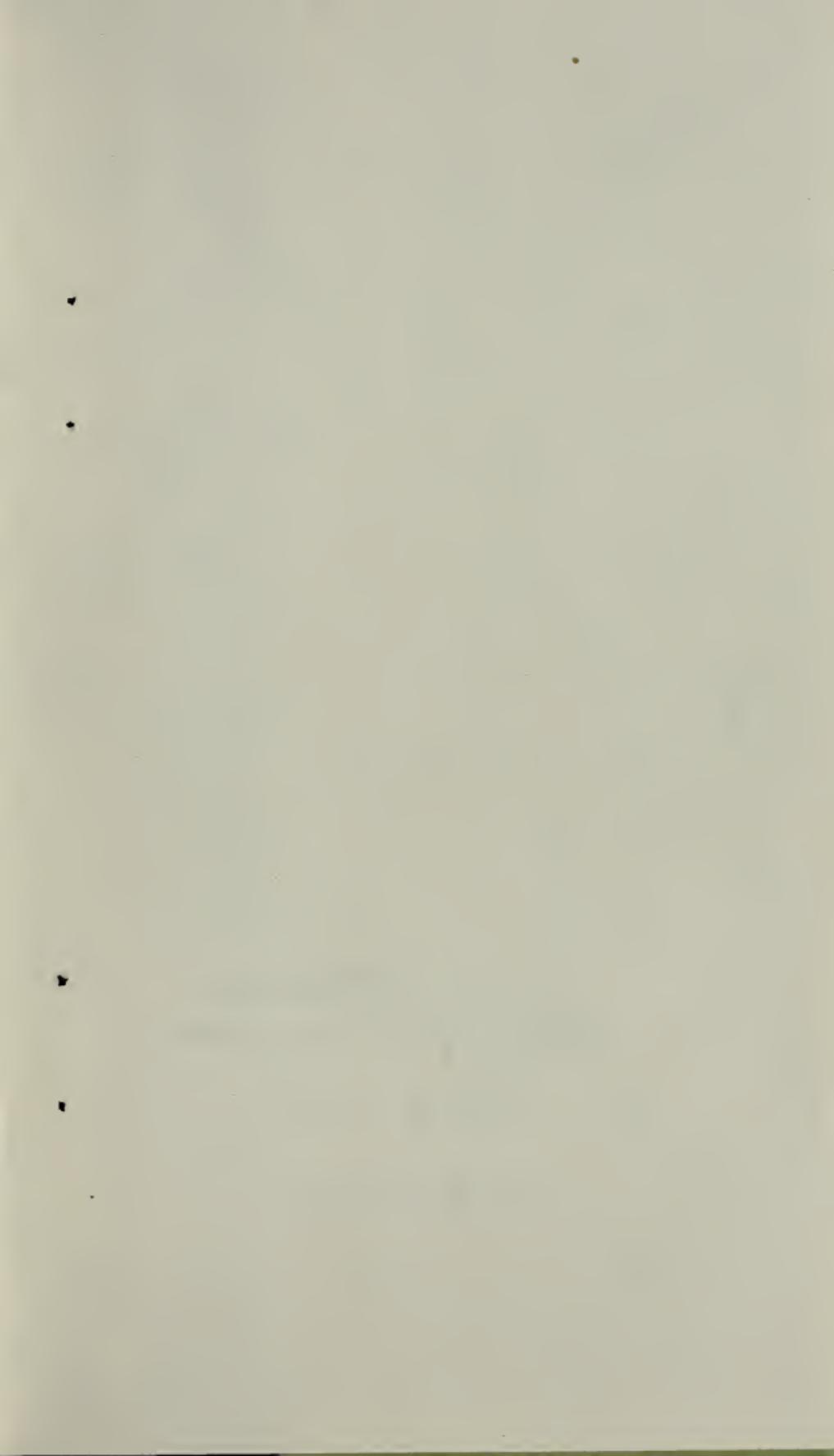
Dr. or Medical Unit \_\_\_\_\_

Address \_\_\_\_\_

Telephone number \_\_\_\_\_

*F.D.Baughman*

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